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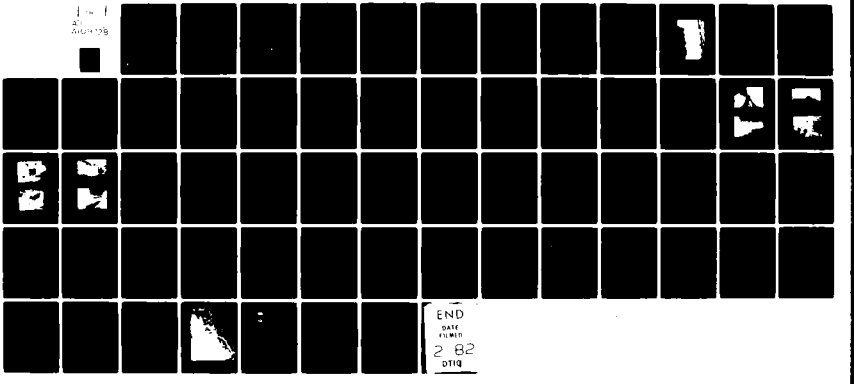

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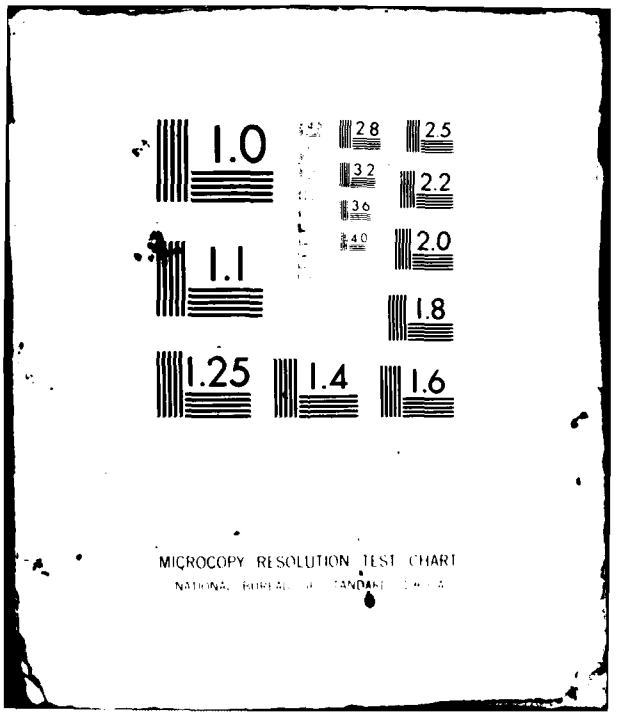
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7. AUTHOR(s)	8. CONTRACT OR GRANT NUMBER(s)
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Dam Safety
National Dam Safety Program
Visual Inspection
Hydrology, Structural Stability
Dansville Reservoir Dam
Genesee River Basin
Steuben County

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization.

Based on the evaluation of the existing conditions, Dansville Reservoir Dam is considered to be in fair condition. The examination of documents and visual observations did not reveal conditions which are considered to constitute a hazard to human life and property.

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The upstream face and portions of the downstream slope of the dam are covered with large trees, requiring clearing under the supervision of a professional engineer. The spillway apron slab was found to be undermined and the concrete is deteriorated, requiring repairs.

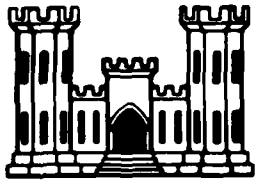
The spillway capacity was evaluated according to the recommended procedure and was found to pass 70 percent of the Probable Maximum Flood (PMF) without overtopping the dam. Because the spillway capacity is less than the recommended spillway design flood of full PMF, the spillway capacity is rated to be inadequate.

GENESEE RIVER BASIN

DANSVILLE RESERVOIR DAM

STEUBEN COUNTY, NEW YORK

INVENTORY NO. N.Y. 431



PREPARED FOR

NEW YORK DISTRICT CORPS OF ENGINEERS

AUGUST 1981

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PREFACE

This report is prepared under the guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the spillway design flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
DANSVILLE RESERVOIR DAM
N.Y. 431
DEC I.D. NO. 42-999
GENESEE RIVER BASIN
STEUBEN COUNTY, NEW YORK

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*Not included due to lack of pertinent data.

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam:	Dansville Reservoir Dam N.Y. 431
State Located:	New York
County Located:	Steuben
Stream:	Little Mill Creek (a tributary of Mill Creek)
Date of Inspection:	June 26, 1981 and July 15, 1981

ASSESSMENT

Based on the evaluation of the existing conditions, Dansville Reservoir Dam is considered to be in fair condition. The examination of documents and visual observations did not reveal conditions which are considered to constitute a hazard to human life and property.

The upstream face and portions of the downstream slope of the dam are covered with large trees, requiring clearing under the supervision of a professional engineer. The spillway apron slab was found to be undermined and the concrete is deteriorated, requiring repairs.

The spillway capacity was evaluated according to the recommended procedure and was found to pass 70 percent of the Probable Maximum Flood (PMF) without overtopping the dam. Because the spillway capacity is less than the recommended spillway design flood of full PMF, the spillway capacity is rated to be inadequate.

The following recommendations should be implemented within 12 months from notification to the owner:

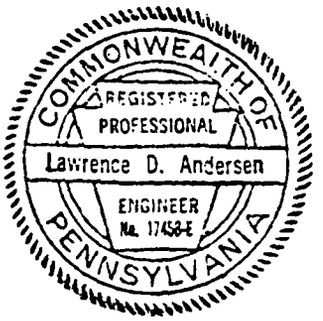
1. The trees on the upstream and downstream faces of the dam should be removed under the supervision of a professional engineer. Trees and brush on the earth embankments flanking the concrete overflow section of the spillway should also be cleared.

2. The spillway structures should be repaired.

3. An emergency action plan should be developed, including a formal warning system to alert the downstream residents in the event of emergencies.

4. The dam and appurtenant structures should be inspected regularly and necessary maintenance should be performed.

Assessment - Dansville Reservoir Dam



Lawrence D. Andersen, P.E.
Vice President
D'Appolonia Consulting Engineers, Inc.
Pittsburgh, Pennsylvania

Approved by:

Col. W. M. Smith, Jr.
New York District Engineer

Date: 14 Sep 81

DANSVILLE RESERVOIR DAM
N.Y. 431
DEC I.D. 42-999
JUNE 26, 1981

OVERVIEW

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
DANSVILLE RESERVOIR DAM
N.Y. 431
DEC I.D. NO. 42-999
GENESEE RIVER BASIN
STEUBEN COUNTY, NEW YORK

SECTION 1: PROJECT INFORMATION

1.1 GENERAL

a. Authority

The Phase I Inspection reported herein was authorized by the Department of the Army, New York District, Corps of Engineers, to fulfill the requirements of the National Dam Inspection Act, Public Law 92-367.

b. Purpose of Inspection

The inspection was to evaluate the existing conditions of the dam to identify deficiencies and hazardous conditions, to determine if they constitute hazards to life and property, and to recommend remedial measures where necessary.

1.2 DESCRIPTION OF PROJECT

a. Dam and Appurtenances

The Dansville Reservoir Dam consists of an earth embankment having a maximum height of approximately 54 feet above its downstream toe and a crest width of 16 feet. The embankment gradually merges into the abutments and the limits of the embankment are not well defined. The length of the dam appears to be about 470 feet. The upstream and downstream faces are covered with brush and large trees. The upstream face has a measured slope of 2.2 horizontal to 1 vertical, and the downstream face has a measured slope of 2 horizontal to 1 vertical.

The spillway of the dam consists of a concrete ogee overflow section located approximately 2,400 feet northwest of the dam near the upstream end of the reservoir. This spillway is located across a natural saddle point and discharges into an adjacent watershed to the west of the reservoir. The ogee overflow section is approximately 100 feet long and 5.5 feet deep. The concrete overflow sections are flanked by earth embankments on each side. The flanking earth embankments are approximately eight feet high adjacent to the spillway structure and gradually merge into the abutments. The flanking embankments were designed to have a 2.5 horizontal to 1 vertical upstream slope, a 2 horizontal to 1 vertical downstream slope, a crest width of 5 feet and a total crest length of approximately 150 feet. The tops of the earth embankments are approximately 2.5 feet below the dam crest level.

The dam is equipped with two cast iron drainpipes (12 inches and 18 inches in diameter) which extend from the upstream embankment toe to the downstream toe. Flow through these pipes is controlled by a manually operated valve located in a valve chamber on the dam crest near the center of the dam.

b. Location

The dam is located on Little Mill Creek, approximately 2.6 miles upstream from its confluence with Mill Creek, east of Dansville in Wayland Township, Stuben County, New York. Plate 1 illustrates the location of the dam and spillway.

c. Size Classification

The dam is classified as an intermediate dam based on its 54-foot height and 954 acre-feet maximum storage capacity.

d. Hazard Classification

The dam is in the high hazard category. Little Mill Creek flows through an uninhabited valley for approximately 2.5 miles. Approximately 1.2 miles downstream from the dam, Little Mill Creek flows through a culvert, under a high (approximately 80-foot) abandoned railroad embankment. The culvert is about 350 feet long and approximately 16 feet wide by 14 feet high. Dansville is located approximately three miles downstream from the dam, a New York State Route 63 bridge is located 2.6 miles downstream, and six residences about 2.7 miles downstream from the dam are considered to be within the potential floodplain of Mill Creek in the event of a dam failure.

It is estimated that failure of the dam under maximum pool level would cause loss of more than a few lives and appreciable property damage in this area.

e. Ownership

The dam is owned by the Village of Dansville, 14 Clara Barton Street, Village of Dansville, New York 14437, 716-335-5270. Attention: Mr. Keith Petti, Superintendent.

f. Purpose of Dam

The dam is a water supply reservoir.

g. Design and Construction History

The date of construction of the dam is unknown. The dam was designed in 1933 by Frank H. Macy, Consulting Engineer, from Rochester, New York.

h. Normal Operating Procedure

The reservoir is normally maintained below the crest level of the spillway by periodically opening the low level outlet pipe. The dam has no supply water outlet. Supply water is released through

the low level outlet pipe into the stream on an as-needed basis and is diverted into the water distribution system downstream from the dam.

1.3 PERTINENT DATA

Elevations referred to in this section and subsequent sections of the report were obtained from design drawings.

a. Drainage Area (sq. mi.)	8.0
b. Discharge at Dam Site (cfs)	
Spillway at top of flanking earth embankments	4000
Spillway at top of dam	8820(1)
Total spillway capacity at top of dam	8820(1)
c. Elevation (USGS Datum) (feet)	
Top of dam	1454.9
Top of earth embankments flanking spillway	1452.5
Spillway crest	1447.0
Reservoir drain, invert elevation	1403.0
d. Reservoir (acres)	
Surface area at top of dam	74.6
Surface area at crest of spillway	45.4
e. Storage Capacity (acre-feet)	
Top of dam	954.0
Spillway crest	495.0
f. Dam	
Type	Earth embankment
Length	470 ± feet
Height	54 feet
Top width	16 feet
Side slopes	Downstream: 2H:1V
	Upstream: 2.2H:1V
Zoning	No
Impervious core	Yes
Cutoff	Yes
Grout curtain	No
g. Spillway	
Type	Overflow concrete ogee section
Length	100 feet
Crest elevation	1447.0

(1) Including flow over the earth embankments flanking the spillway.

h. Earth Embankments Flanking Spillway
(Emergency Spillway)

The dam has no formal emergency spillway. However, earth embankments flanking the concrete overflow section are about 2.5 feet below the dam crest level and could function as an emergency spillway. Further description of the embankments are included in Section 1.2 a.

i. Reservoir Drain

Type	12-inch and 18-inch-diameter cast iron pipes
Length	250 ± feet
Access	Through valve chamber
Regulating facility	Valves

SECTION 2: ENGINEERING DATA

2.1 DATA AVAILABLE

Available information was obtained from the New York State Department of Environmental Conservation, Dam Safety Division files and from personnel of the Water and Sewer Department, Dansville, New York. Available information includes design drawings dated 1929 and 1933, and a dam inspection report dated 1954.

2.2 GEOLOGY

The Dansville Reservoir Dam is located in the glaciated Allegheny Plateau section of the Appalachian Plateau Province. This region is characterized as a maturely dissected plateau with the topographic features modified by continental glaciation. The modification consists of rounding off of the high areas and deposition of glacial till in the valleys.

The dam site is located just north of a northeast trending anticline (trending approximately north 70 degrees east). The folding is gentle with a maximum dip of the limbs of one to two degrees. The dip of the strata is affected locally by the folding; however, regionally, the rock strata dip south to southwest at approximately 100 to 150 feet per mile. The most prominent fracture orientations in the region have a strike of north 20 to 30 degrees west.

The rock strata in the area consist of unconsolidated Pleistocene glacial till (Wisconsin Drift) underlain by strata of the West Falls Group (Upper Devonian Age). The glacial till consists of a mixture of clay and silt with varying quantities of gravel. The glacial till is relatively thin on hilltops and slopes and thicker in the valleys. The bedrock consists of a thick sequence of interbedded gray to greenish-gray shale, gray silty shale and siltstone, gray calcareous siltstone, gray mudstone, and black fissile shale.

The abutment slopes are relatively gentle and not susceptible to landslide slope movement.

2.3 SUBSURFACE INVESTIGATION

Available information indicates that three test pits, ranging in depth from 9 to 11 feet, were excavated in order to investigate subsurface conditions. The test pit materials were classified as firm clay.

2.4 EMBANKMENT AND APPURTENANT STRUCTURES

Plate 2 shows a plan view of the dam and spillway. Plate 3 shows a detailed plan, section, and details of the dam and appurtenant structures. The dam is a homogeneous embankment with a central

reinforced concrete core wall. A steel sheetpile cutoff wall, having a depth of about 10 feet, is provided across the valley below the concrete core wall. A steel sheetpile cutoff wall was also provided across the spillway ogee section.

The dam has a measured slope of about 2.2 horizontal to 1 vertical on the upstream face and a measured slope of about 2 horizontal to 1 vertical on the downstream face.

The low level outlet facilities include two cast iron pipes (12-inch and 18-inch-diameters). Flow through the pipes is controlled by valves located in a valve chamber at the midpoint of the pipes. As shown in Plate 3, the pipes are supported by a reinforced concrete cradle. Upstream from the valve chamber, the pipes are equipped with concrete cutoff collars.

No reference was found to indicate whether a hydrologic/hydraulic analysis was conducted to size the spillway or outlet structures.

2.5 CONSTRUCTION RECORDS

No construction records are available. Based on visual observations, the dam and the spillway structures appear to be in general conformance with the 1933 design drawing.

2.6 OPERATING RECORDS

None available.

2.7 EVALUATION OF DATA

The information obtained from the state files is considered to be adequate for Phase I inspection purposes.

SECTION 3: VISUAL INSPECTION

3.1 FINDINGS

a. General

Visual inspections of the dam were conducted on June 26 and July 15, 1981. On both dates, the pool level was approximately two feet below the crest level of the spillway.

b. Embankment

No signs of distress, misalignment, or seepage were observed. The faces and crest of the dam are covered with large trees and brush. Most of the larger trees are located on the upstream slope. Growth on the dam is not considered to be extensive enough to significantly hamper inspection. The top of the dam was surveyed relative to the spillway crest level and found to be in the range of 0.1 foot below to 0.4 foot above the design elevation.

c. Primary Spillway

The spillway structure consists of a concrete ogee section located approximately 2,400 feet northwest of the dam. The ogee section is connected to a concrete apron which directs discharge into the natural stream bed downstream from the apron. The concrete at the junction of the ogee section and the apron slabs is deteriorated and undermined. This area is in need of repairs.

d. Emergency Spillway

The dam has no formal emergency spillway. However, earth embankments flanking the concrete overflow section of the primary spillway are about 2.5 feet below the dam crest elevation and could function as an emergency spillway. The flanking embankments are approximately eight feet high adjacent to the concrete spillway overflow section, then gradually merge into the abutments. A further description of the flanking embankments is included in Section 1.2 a. Presently, the embankments are covered with grass, brush and small trees. Visual observations suggest that the embankments may withstand overtopping of up to about one foot without significant erosion. With continued or greater overtopping, partial or complete erosion of the embankments is considered to be likely.

e. Reservoir Drain

The reservoir drain facilities consist of a 12-inch-diameter and an 18-inch-diameter cast iron pipe which extend from the upstream embankment toe to the downstream toe. Flow through these pipes is controlled by manually operated valves located in a valve chamber which extends to the crest of the dam near the center of the dam. The system is reported to be operational, but its operation was not observed.

f. Downstream Channel

The downstream channel below the spillway discharge structure is the natural stream bed. The channel appears to be stable within the vicinity of the spillway. The downstream channel below the reservoir drain facilities is the natural stream bed. The channel appears to be stable within the vicinity of the dam.

g. Reservoir

There are no visible signs of instability or sedimentation problems within the reservoir area.

3.2 EVALUATION

The dam was found to be in fair condition. Large trees on the crest and faces of the dam should be removed. Deteriorating concrete portions of the spillway structure should be repaired.

SECTION 4: OPERATION AND MAINTENANCE PROCEDURES

4.1 PROCEDURES

The reservoir level is normally maintained below the spillway crest elevation by periodically discharging flow through the low level outlet pipes. According to the operating personnel, the intent of this operating procedure is to avoid discharge over the spillway which reportedly causes erosion of the farmland located downstream from the spillway discharge channel.

4.2 MAINTENANCE OF THE DAM

The dam is overgrown with large trees and brush. It does not appear that any attempts have been made to maintain the dam.

4.3 WARNING SYSTEM IN EFFECT

No formal warning system exists for the dam.

4.4 EVALUATION

The maintenance condition of the dam is considered to be poor. As noted before, the dam and spillway are in need of repair and restoration.

SECTION 5: HYDRAULIC/HYDROLOGY

5.1 DRAINAGE AREA CHARACTERISTICS

The Dansville Reservoir Dam drains a watershed of 8.0 square miles. The basin is comprised of woodlands. Relief ranges from gentle to moderate.

5.2 ANALYSIS CRITERIA

As previously stated, Dansville Reservoir Dam is classified as an intermediate dam in the high hazard category. According to the recommended criteria for evaluating spillway discharge capacity, such impoundments are required to pass the full PMF.

The PMF inflow hydrograph for the reservoir was determined using the Dam Safety Version of the HEC-1 computer program developed by the Hydrologic Engineering Center of the U.S. Army Corps of Engineers. The data used for the computer input are presented in Appendix D.

5.3 SPILLWAY CAPACITY

The spillway of the dam consists of a 100-foot-long concrete ogee section. Because the earth embankments on each side of the spillway are below the dam crest level, flow over these sections provides additional spillway capacity. Based on the available head relative to the top of the dam, the combined capacity of the ogee section and low embankments adjacent to the spillway is calculated to be 8820 cfs. The discharge capacity of the 5.5-foot-deep, 100-foot-wide concrete overflow section is calculated to be about 4000 cfs.

5.4 RESERVOIR CAPACITY

The storage capacity of the dam at normal pool level (El. 1447.0) is 495 acre-feet and at the top of dam (El. 1454.9), the storage capacity is 954 acre-feet.

5.5 FLOODS OF RECORD

No data available.

5.6 OVERTOPPING POTENTIAL

The PMF inflow hydrograph, determined according to the recommended procedure, was found to have a peak flow of 12,950 cfs. Various percentages of the PMF inflow hydrograph were routed through the reservoir and it was found that by considering the combined capacity of the ogee overflow section and the adjacent embankment

overflow sections, the dam can pass approximately 70 percent of the PMF without overtopping the dam. Based on the capacity of the ogee section alone, the dam can pass approximately 30 percent of the PMF (reservoir surface at about the crest level of the earth embankment flanking the spillway). Under the full PMF, low areas near the right abutment of the dam will be overtopped for a duration of approximately five hours with a maximum depth of about one foot.

As previously noted, earth embankments flanking the concrete overflow sections of the primary spillway are about 2.5 feet below the dam crest elevation. Therefore, these embankments would be overtopped prior to overtopping of the main dam. Visual observations suggest that erosion of these embankments might begin when overtopped by about one foot; and in that event, these embankments may function as a spillway fuse plug. The discharge capacity of the section will increase with continued erosion of the earth embankments. Because the height of the flanking embankments are approximately equal to the depth of the spillway, flow resulting from continued or full erosion of these sections would be approximately equal to flow from an equivalent width spillway.

5.7 EVALUATION

The spillway was found to pass approximately 70 percent of the PMF without overtopping the dam considering the combined capacity of the spillway and the flow over the embankments flanking the spillway. Because the spillway capacity is less than the required spillway design flood of full PMF, the spillway capacity is rated to be inadequate. As discussed above, the earth embankments flanking the spillway may function as spillway fuse plugs when overtopped, thereby increasing the spillway capacity of the dam.

SECTION 6: STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations

As discussed in Section 3, the field observations did not reveal any signs of distress that would significantly affect the stability of the dam at this time and none were reported in the past.

b. Design and Construction Data

Available information, other than the design drawings, included no quantitative data which could aid in the assessment of structural stability of the dam. Based on visual observations, the static stability of the dam is considered to be adequate.

c. Postconstruction Changes

None reported.

d. Seismic Stability

The dam is located in Seismic Zone 2. In this zone, a horizontal acceleration of 0.05g is typically used for preliminary analysis. No data is available relative to the character of the embankment material. Therefore, the adequacy of seismic stability of the embankment could not be assessed.

SECTION 7: ASSESSMENT/RECOMMENDATIONS

7.1 ASSESSMENT

a. Safety

Visual observations indicate that Dansville Reservoir Dam is in fair condition. At this time, no conditions were noted that would seriously affect the overall adequate performance of the dam. Clearing of trees from the faces of the dam and repairs to the spillway concrete are required.

The spillway capacity was evaluated according to the recommended procedure, and the spillway was found to pass approximately 70 percent of the PMF without overtopping the dam. Because the dam cannot pass the recommended spillway design flood of full PMF without overtopping, the spillway is classified to be inadequate. However, it is not considered to be seriously inadequate, because the spillway capacity is greater than 50 percent of the PMF.

b. Adequacy Information

Available information, in conjunction with visual observations, is considered to be sufficient to make a Phase I evaluation.

c. Need for Additional Investigation

No additional investigation is required.

d. Urgency

The following recommendations should be implemented within 12 months from notification to the owner.

7.2 RECOMMENDATIONS

1. The trees on the upstream and downstream faces of the dam should be removed under the supervision of a professional engineer. Trees and brush on the earth embankments flanking the concrete overflow section of the spillway should also be cleared.

2. The spillway structures should be repaired.

3. An emergency action plan should be developed, including a formal warning system to alert the downstream residents in the event of emergencies.

4. The dam and appurtenant structures should be inspected regularly and necessary maintenance should be performed.

APPENDIX A

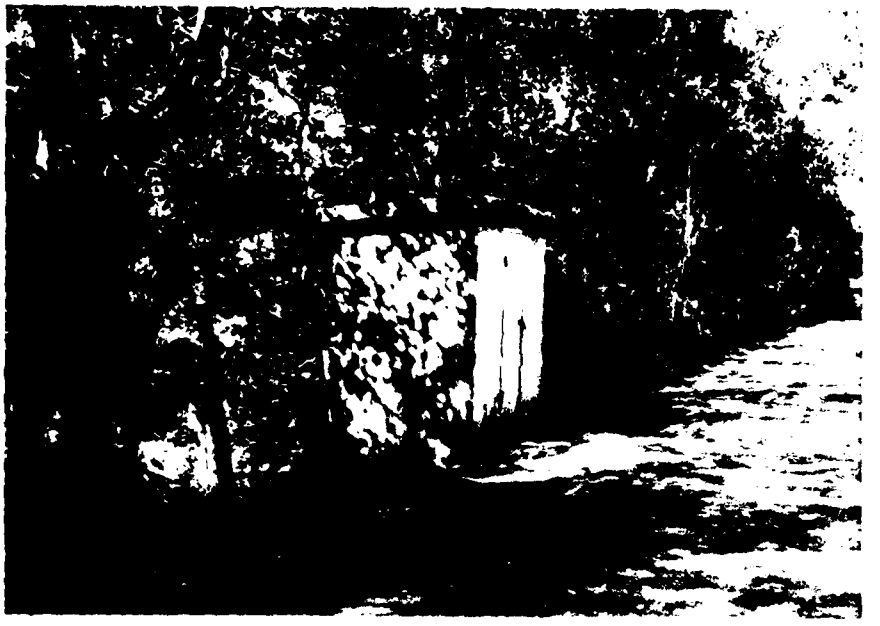
PHOTOGRAPHS

PHOTOGRAPH NO. 1
Dam Crest (looking southwest)

PHOTOGRAPH NO. 2
Upstream Face

PHOTOGRAPH NO. 3
Spillway
(Flanking embankment in background
in line with spillway crest)

PHOTOGRAPH NO. 4
Voids Under Spillway Slab



PHOTOGRAPH NO. 5
Outlet Works Gatehouse

PHOTOGRAPH NO. 6
Outlet Pipes
(pipe adjacent to smaller outlet
pipe is gate chamber drainpipe)

PHOTOGRAPH NO. 7
Railroad Underpass
(approximately 1.0 mile downstream)

PHOTOGRAPH NO. 8
Stream Through Dansville
(3.0 miles downstream)

APPENDIX B

VISUAL INSPECTION CHECKLIST

APPENDIX B
VISUAL INSPECTION CHECKLIST

1) Basic Data

a. General

Name of Dam Dansville Reservoir Dam

Fed. I.D. # N.Y. 431 DEC Dam No. 42-999

River Basin Genesee River Basin

Location: Town Dansville County Steuben

Stream Name Little Mill Creek

Tributary of Mill Creek

Latitude (N) 42° 34.1' Longitude (W) 77° 38.5'

Type of Dam Earth

Hazard Category High hazard

Date(s) of Inspection June 26, 1981 and July 15, 1981

Weather Conditions Cloudy, Warm, Temp. 75 Degrees

Reservoir Level at Time of Inspection El. 1445.0

b. Inspection Personnel Lawrence Andersen, P.E.; James Poellot, P.E.; Bilgin Erel, P.E.; and Michael Bort

c. Persons Contacted (Including Address & Phone No.)

Mr. Keith Petti, Superintendent of Water and Sewers, 14 Clara Barton Street, Town Hall, Dansville, NY 14437, (716) 335-5270

d. History:

Date Constructed Unknown Date(s) Reconstructed N/A

Designer Frank H. Macy, Consulting Engineers, Rochester, NY

Constructed by Unknown

Owner Village of Dansville, New York

2) Embankment

a. Characteristics

(1) Embankment Material Earth

(2) Cutoff Type Steel sheetpiles

(3) Impervious Core Concrete core

(4) Internal Drainage System None

(5) Miscellaneous --

b. Crest

(1) Vertical Alignment Good (Within 0.4 foot of design elevation).

(2) Horizontal Alignment Good

(3) Surface Cracks None

(4) Miscellaneous --

c. Upstream Slope

(1) Slope (Estimate) 2.2H:1V (as measured)

(2) Undesirable Growth or Debris, Animal Burrows Covered with brush and large trees.

(3) Sloughing, Subsidence or Depressions None

(4) Slope Protection Riprap

(5) Surface Cracks or Movement at Toe Not visible.

d. Downstream Slope

(1) Slope (Estimate) 2H:1V (as measured)

(2) Undesirable Growth or Debris, Animal Burrows Covered with brush and large trees.

(3) Sloughing, Subsidence or Depressions None observed.

(4) Surface Cracks or Movement at Toe None observed.

(5) Seepage None observed.

(6) External Drainage System (Ditches, Trenches, Blanket)

None

(7) Condition Around Outlet Structure Good

(8) Seepage Beyond Toe None observed.

e. Abutments - Embankment Contact

Good

(1) Erosion at Contact None

(2) Seepage Along Contact None observed.

3) Drainage System

a. Description of System None

b. Condition of System --

c. Discharge from Drainage System --

4) Instrumentation (Monumentation/Surveys, Observation Wells, Weirs, Piezometers, etc.)

None

5) Reservoir

a. Slopes Gentle slopes, no problems observed.

b. Sedimentation Unknown

c. Unusual Conditions Which Affect Dam None observed.

6) Area Downstream of Dam

a. Downstream Hazard (No. of Homes, Highways, etc.) A large railroad embankment and a New York State Route 63 bridge located 1.2 and 2.6 miles downstream from the dam, respectively, approximately 6 residences located 2.7 miles downstream, and the Village of Dansville located 3 miles downstream.

b. Seepage, Unusual Growth None

c. Evidence of Movement Beyond Toe of Dam None

d. Condition of Downstream Channel No problem in the vicinity of the dam.

7) Spillway(s) (Including Discharge Conveyance Channel)

a. General Service Spillway: Concrete ogee section located approximately 2,400 feet northwest of dam.
Auxiliary Spillway: No formal emergency spillway. However, earth embankments on either side of the spillway may function as an emergency spillway.

b. Condition of Service Spillway Generally satisfactory. Deteriorating concrete at the junction of the overflow section and the downstream apron slabs.

c. Condition of Auxiliary Spillway No formal auxiliary spillway. Earth embankments adjacent to the ogee overflow section are overgrown with vegetation and small brush.

d. Condition of Discharge Conveyance Channel Earth channel, small trees and brush.

8) Reservoir Drain/Outlet

Type: Pipe X Conduit _____ Other _____

Material: Concrete _____ Metal _____ Other Cast iron pipe, Class B

Size: 12- and 18-inch-diameter Length 250 ± feet

Invert Elevations: Entrance El. 1403 Exit El. 1402.0

Physical Condition (Describe): Not observable.

Material: --

Joints: -- Alignment --

Structural Integrity: --

Hydraulic Capability: --

Means of Control: Gate _____ Valve X Uncontrolled _____

Operation: Operable X Inoperable _____ Other _____

Present Condition (Describe): The reservoir drainpipes are reported to be operable. (Operation not observed.)

9) Structural

a. Concrete Surfaces The spillway concrete is generally in fair condition except for deterioration and undermining at the junction of the ogee section and the discharge apron.

b. Structural Cracking See note above.

c. Movement - Horizontal & Vertical Alignment (Settlement)
None observed.

d. Junctions with Abutments or Embankments No problems observed.

e. Drains - Foundation, Joint, Face N/A

f. Water Passages, Conduits, Sluices N/A

g. Seepage or Leakage None observed.

h. Joints - Construction, etc. N/A

i. Foundation Unobservable

j. Abutments N/A

k. Control Gates Condition unknown.

l. Approach & Outlet Channels Good

m. Energy Dissipators (Plunge Pool, etc.) Good

n. Intake Structures N/A

o. Stability N/A

p. Miscellaneous --

10) Appurtenant Structures (Power House, Lock, Gatehouse, Other)

a. *Description and Condition* None

APPENDIX C

ENGINEERING DATA CHECKLIST

APPENDIX C
ENGINEERING DATA CHECKLIST
NAME OF DAM: DANSVILLE RESERVOIR DAM

AREA-CAPACITY DATA:

	Elevation (feet)	Surface Area (acres)	Storage Capacity (acre-feet)
1) Top of Dam (Measured Low Spot)	1454.9	74.6	954.0
2) Design High Water (Max. Design Pool)	N/A	N/A	N/A
3) Auxiliary Spillway Crest	N/A	N/A	N/A
4) Service Spillway Crest	1447.0	45.4	495.0
5) Crest of Orifice (Normal Pool)	N/A	N/A	N/A

DISCHARGES

	Discharge (cfs)
1) Average Daily	16 ±
2) Principal Spillway at Top of Dam(1)	8820
3) Auxiliary Spillway	N/A
4) Total (of all facilities) at Maximum High Water	Unknown
5) Maximum Known Flood	Unknown
6) At Time of Inspection	1 ±

(1)Flow over ogee section and flanking earth embankments.

DAM: Dansville Reservoir Dam

CREST ELEVATION: 1454.9

Type: Earth

Width: 16 feet Length: 470± feet

Spillover: 100-foot-wide concrete ogee section.

Location: Approximately 2,400 feet northwest of dam.

SPILLWAY:

SERVICE		AUXILIARY
		The dam has no formal auxiliary spillway.
1447.0	Elevation	
Ogee section	Type	
100 feet	Width	
	Type of Control	
Uncontrolled	Uncontrolled	
	Controlled	
N/A	Type (Flashboards; Gate)	
N/A	Number	
150± feet	Size/Length	
Concrete	Invert Material	
Unknown	Anticipated Length of Operating Service	
N/A	Chute Length	
2 ± feet	Height Between Spillway Crest and Approach Channel Invert (Weir Flow)	

Hydrometerological Gages:

Type: None

Location: N/A

Records:

Date - N/A

Max. Reading - N/A

FLOODWATER CONTROL SYSTEM:

Warning System: None

Method of Controlled Releases (Mechanisms):

None

DRAINAGE AREA: 8.0 square miles

DRAINAGE BASIN RUNOFF CHARACTERISTICS:

Land Use - Type: Woodlands

Terrain - Relief: Gentle to moderate

Surface - Soil: Glacial till (low permeability).

Runoff Potential (existing or planned extensive alterations to existing surface or subsurface conditions)

Moderate runoff potential due to general gentle to moderate slopes and low infiltration rate.

Potential Sedimentation Problem Areas (natural or man-made; present or future)

None observed.

Potential Backwater Problem Areas for Levels at Maximum Storage Capacity Including Surcharge Storage:

None observed.

Dikes - Floodwalls (overflow and nonoverflow) - Low Reaches Along the Reservoir Perimeter:

Location: None

Elevation:

Reservoir:

Length at Maximum Pool: 2,700± feet

Length of Shoreline at Spillway Crest: 7,200± feet

APPENDIX D

HYDROLOGY AND HYDRAULIC ANALYSES

HYDROLOGY AND HYDRAULIC ANALYSIS
DATA BASE

NAME OF DAM: Dansville Reservoir Dam (NY DEC 42-999)

PROBABLE MAXIMUM PRECIPITATION (PMP) = 22.0 INCHES/24 HOURS(1)

STATION	1	2	3	4	5
Station Description	Dansville Reservoir	Dansville Reservoir Dam			
Drainage Area (square miles)	8.0	-			
Cumulative Drainage Area (square miles)	8.0	8.0			
Adjustment of PMF for Drainage Area (%)					
6 Hours	116	-			
12 Hours	126	-			
24 Hours	141	-			
48 Hours	151	-			
72 Hours	-	-			
Snyder Hydrograph Parameters					
C_p/C_t(2)	0.60/1.87	-			
L (miles)(3)	5.76	-			
L_{ca} (miles)(3)	2.65	-			
$t_p = C_t(L \cdot L_{ca})^{0.3}$ (hours)	4.24	-			
Spillway Data					
Crest Length (ft)	--	100.0			
Freeboard (ft)	--	-			
Discharge Coefficient	--	3.1			
Exponent	--	1.5			

(1) Hydrometeorological Report 33 (Figure 1), U.S. Army, Corps of Engineers, 1956.
(2) Snyder's Coefficients.
(3) L = Length of longest water course from outlet to basin divide.
L_{ca} = Length of water course from outlet to point opposite the centroid of drainage area.

```
**********
FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION      JULY 1978
  LAST MODIFICATION  01 APR 80
**********
    1                A1       SNYDER UNIT HYDROGRAPH, SPILLWAY AND DAM OVERTOPPING ANALYSES
    2                A2       DANSVILLE RES. DAM,(NY 42-999),STEUBEN COUNTY,N.Y. PROJECT NO. NC-778-12
    3                A3       FOR 20%,30%,40%,50%,60%,70%,80%,90%,AND 100% PROBABLE MAXIMUM FLOOD(PMF)
    4                B    300       0       30        0        0        0        0        0       -4        0
    5                B1     5
    6                J      1       9        1
    7                J1   0.20    0.30     0.40     0.50     0.60     0.70     0.80     0.90     1.00
    8                K      0       1                                             1
    9                K1       CALC. OF SNYDER INFLOW HYDROGRAPH TO DANSVILLE RES. DAM, (N.Y. 42-999)
   10                M      1       1      8.0               8.0                                    1
   11                P             22.0     116      126      141      151
   12                T                                                      1.0     0.05           0.0060
   13                W    4.24    0.60
   14                X    -1.5   -0.05      2.0
   15                K      1       2                                             1
   16                K1       ROUTING FLOW THROUGH DANSVILLE RESERVOIR DAM, (N.Y. 42-999)
   17                Y                                        1        1
   18                Y1     1                                                -1447.0
   19                SA     0.0     0.7      4.4      10.1     24.0     54.5     95.5    158.9 *
   20                SE1405.0  1410.0   1420.0   1430.0   1440.0   1450.0   1460.0   1480.0 *
   21                SS1447.0   100.0     3.10      1.5
   22                SD1454.9     2.65      1.5    610.0
   23                SL 150.0   200.0    500.0    580.0    610.0
   24                SV1452.5  1454.9   1455.0   1455.1   1455.4
   25                K     99
```

*Reservoir is planimetered from design drawings and USGS topographic maps.

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO FLOWS RATIO 1 .20	RATIO 2 .30	RATIO 3 .40	RATIO 4 .50	RATIO 5 .60	RATIO 6 .70	RATIO 7 .80	RATIO 8 .90	RATIO 9 1.00
HYDROGRAPH AT	1	8.00	1	2594.	3890.	5187.	6484.	7781.	9078.	10374.	11671.	12968.
	(	20.72)	(	73.44)(	110.16)(	146.89)(	183.61)(	220.33)(	257.05)(	293.77)(	330.49)(	367.21)
ROUTED TO	2	8.00	1	2502.	3770.	5160.	6396.	7701.	9003.	10348.	11655.	12954.
	(	20.72)	(	70.84)(	106.75)(	144.40)(	181.12)(	218.07)(	254.93)(	293.03)(	329.98)(	366.81)

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1 .....

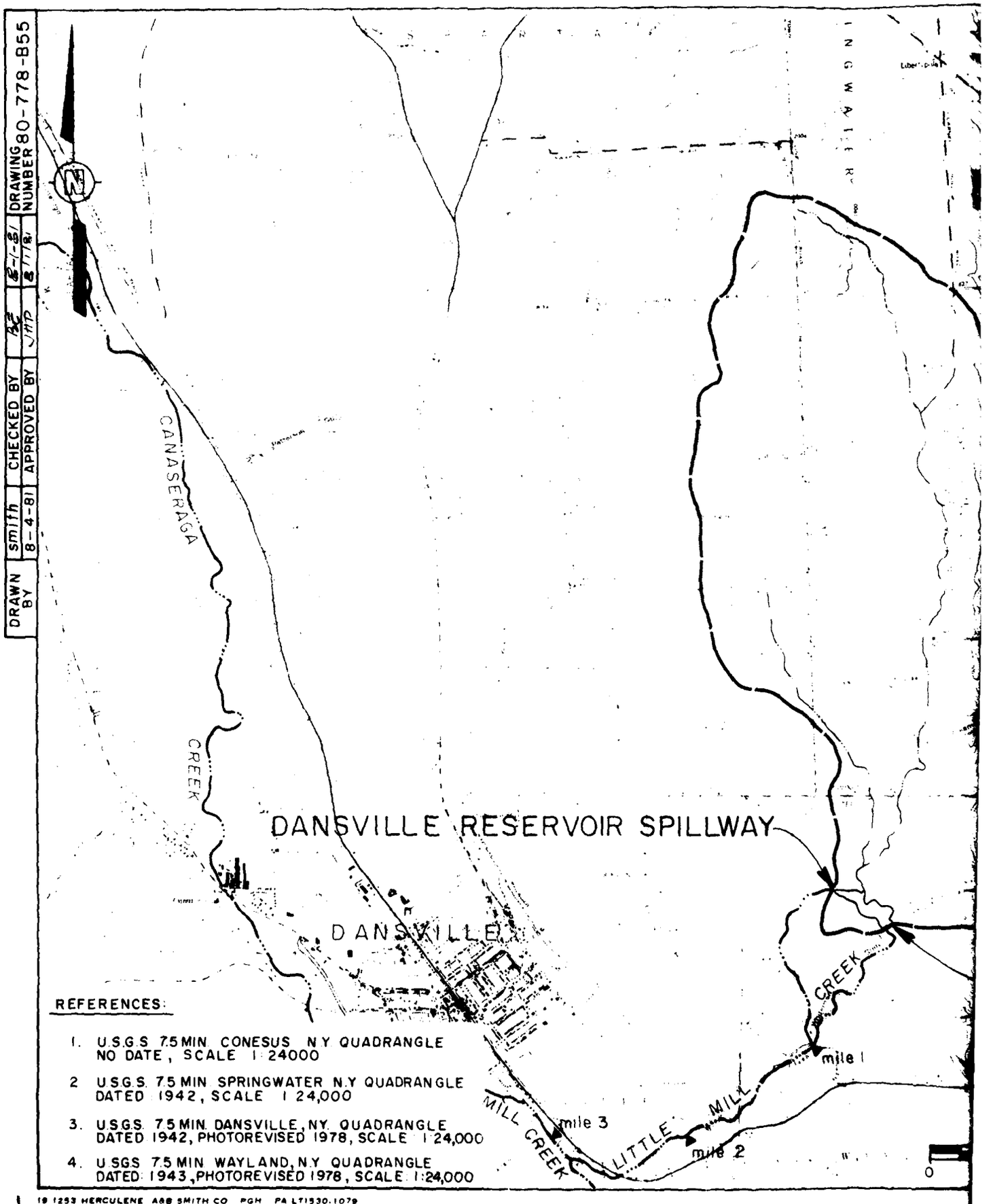
	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1447.00	1447.00	1454.90
STORAGE	495.	495.	954.
OUTFLOW	0.	0.	8820.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.20	1451.02	0.00	706.	2502.	0.00	44.50	0.00
.30	1452.29*	0.00	777.	3770.	0.00	44.50	0.00
.40	1453.22	0.00	837.	5100.	0.00	44.50	0.00
.50	1453.88	0.00	881.	6396.	0.00	44.00	0.00
.60	1454.45	0.00	922.	7701.	0.00	44.00	0.00
.70	1454.97	.07	959.	9003.	1.00	44.00	0.00
.80	1455.36	.46	988.	10348.	3.00	44.00	0.00
.90	1455.67	.77	1011.	11653.	4.00	44.00	0.00
1.00	1455.94	1.04	1033.	12954.	5.00	44.00	0.00

*The top of the earth embankments flanking the spillway is at Elevation 1452.5.

APPENDIX E

PLATES



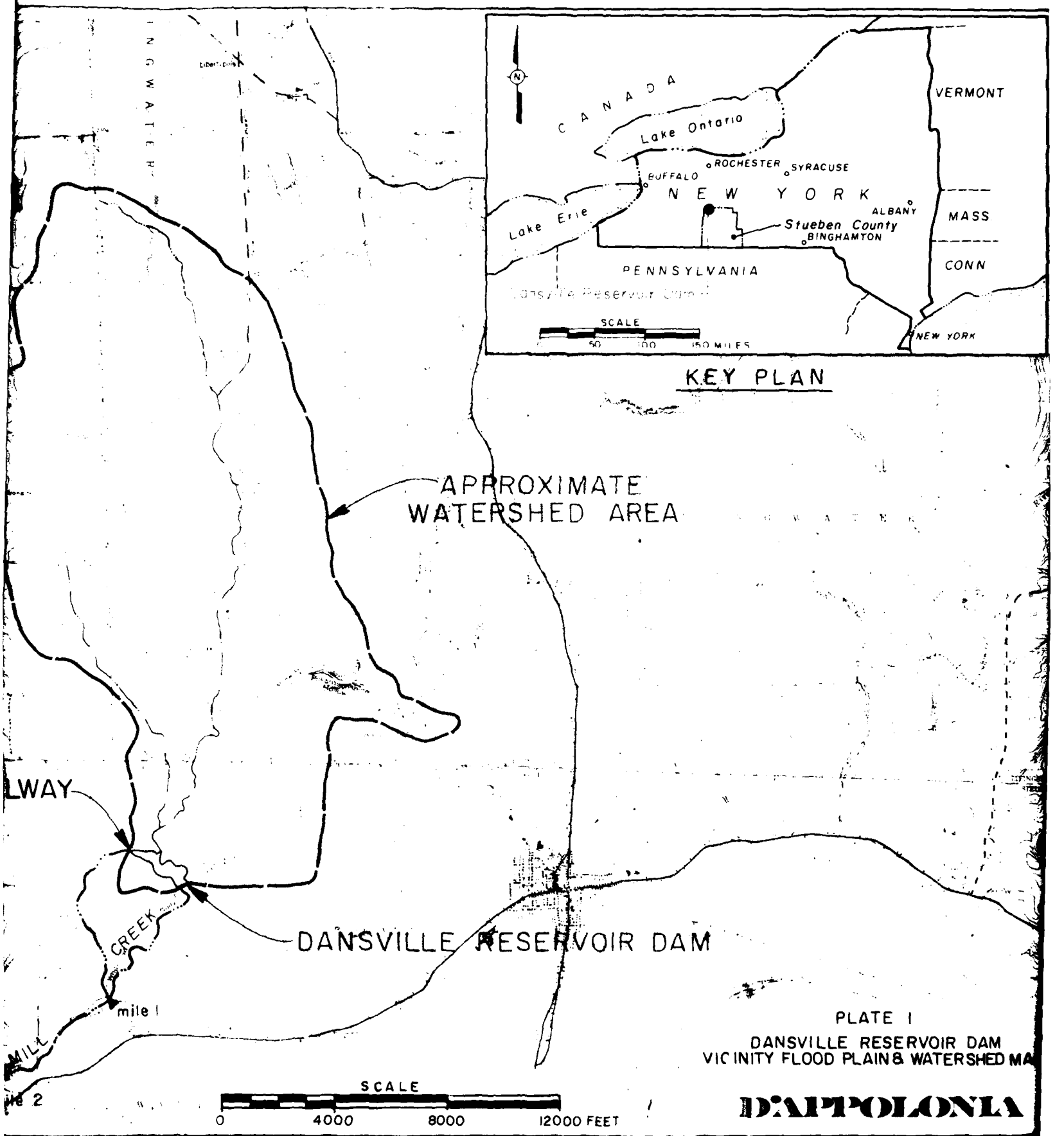
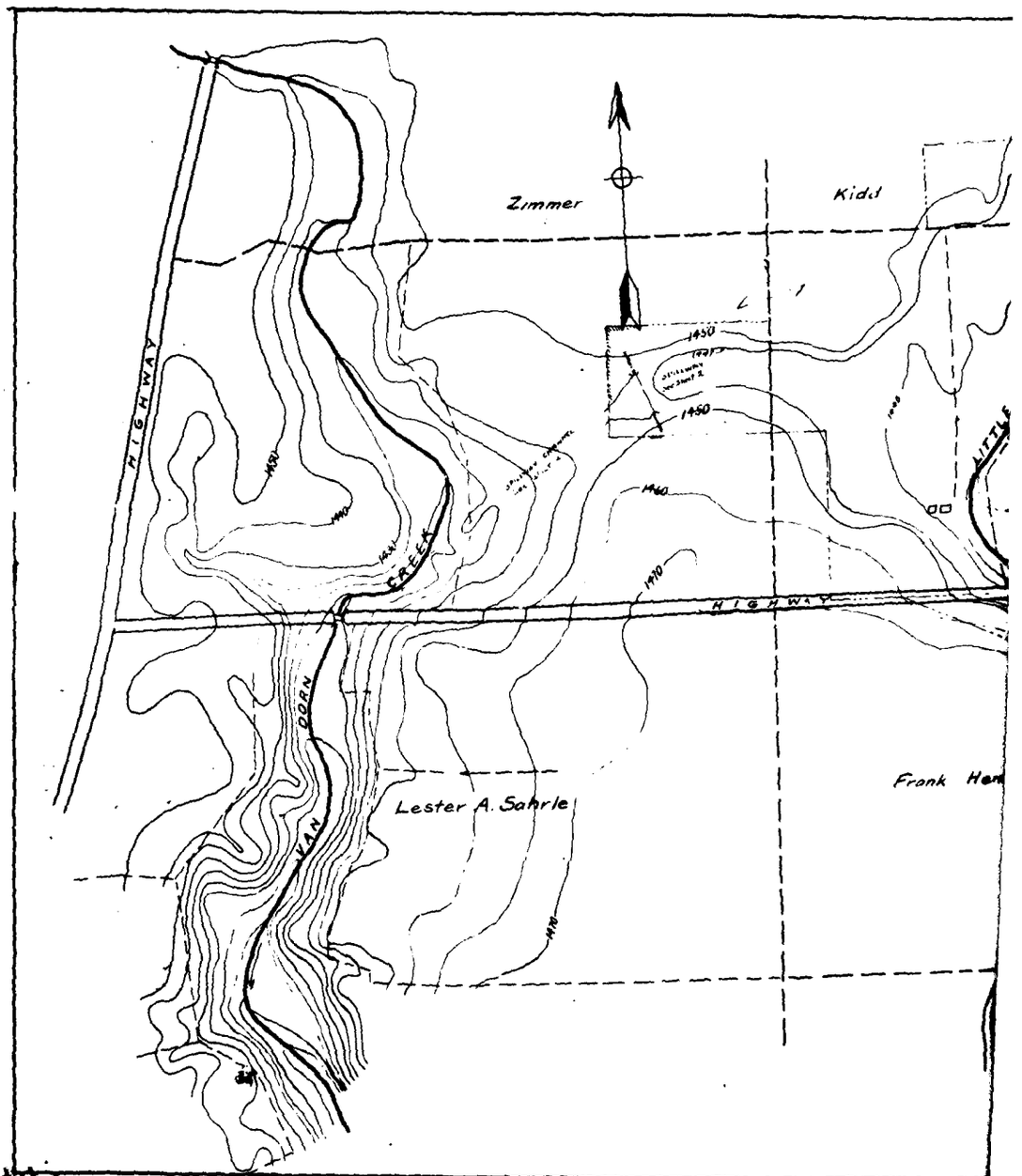


PLATE 1

DANSVILLE RESERVOIR DAM
VICINITY FLOOD PLAIN & WATERSHED MA

DAPOLONIA

7	CHECKED BY		DRAWING NUMBER 80-778-B56
81	APPROVED BY		



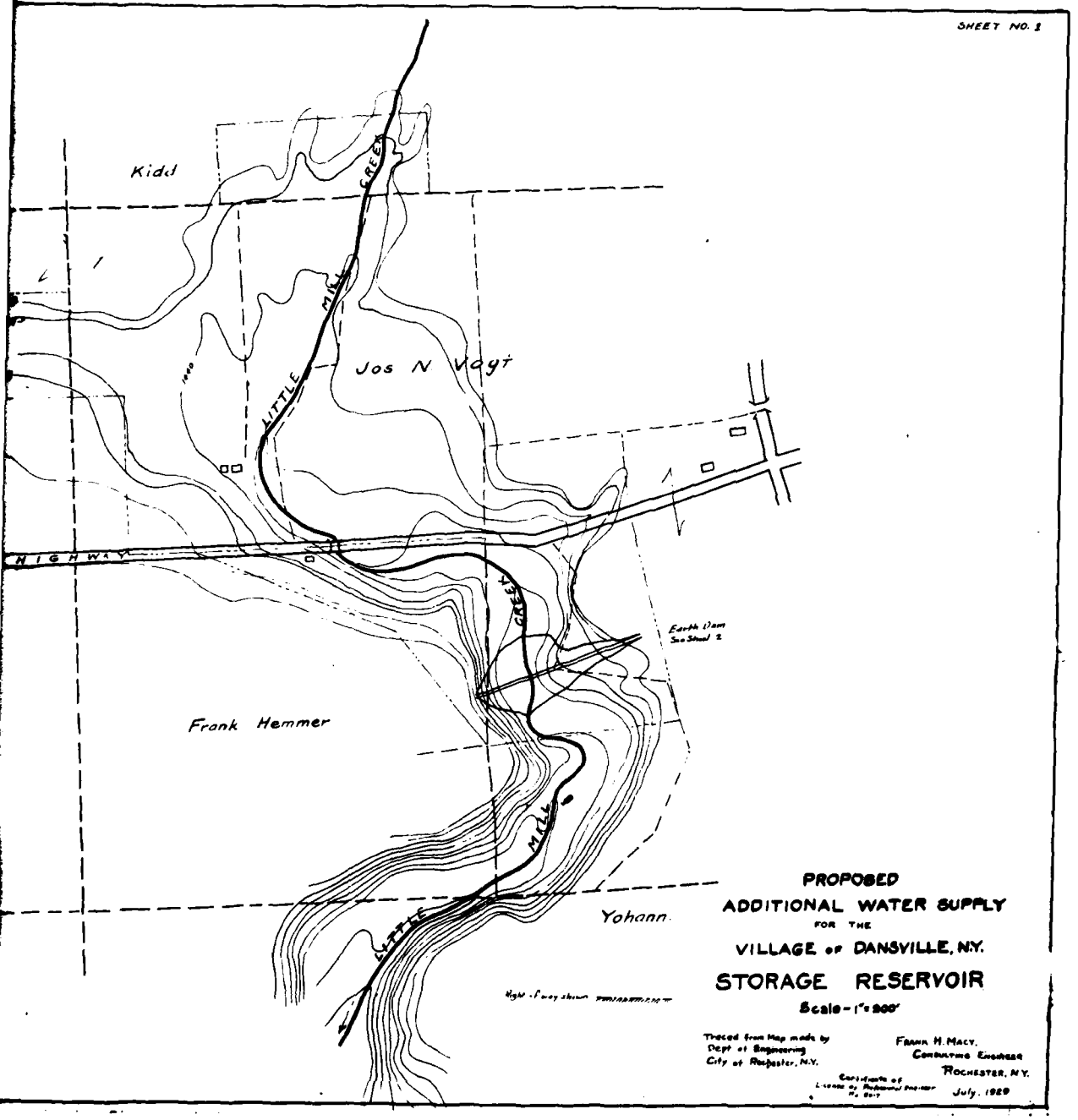
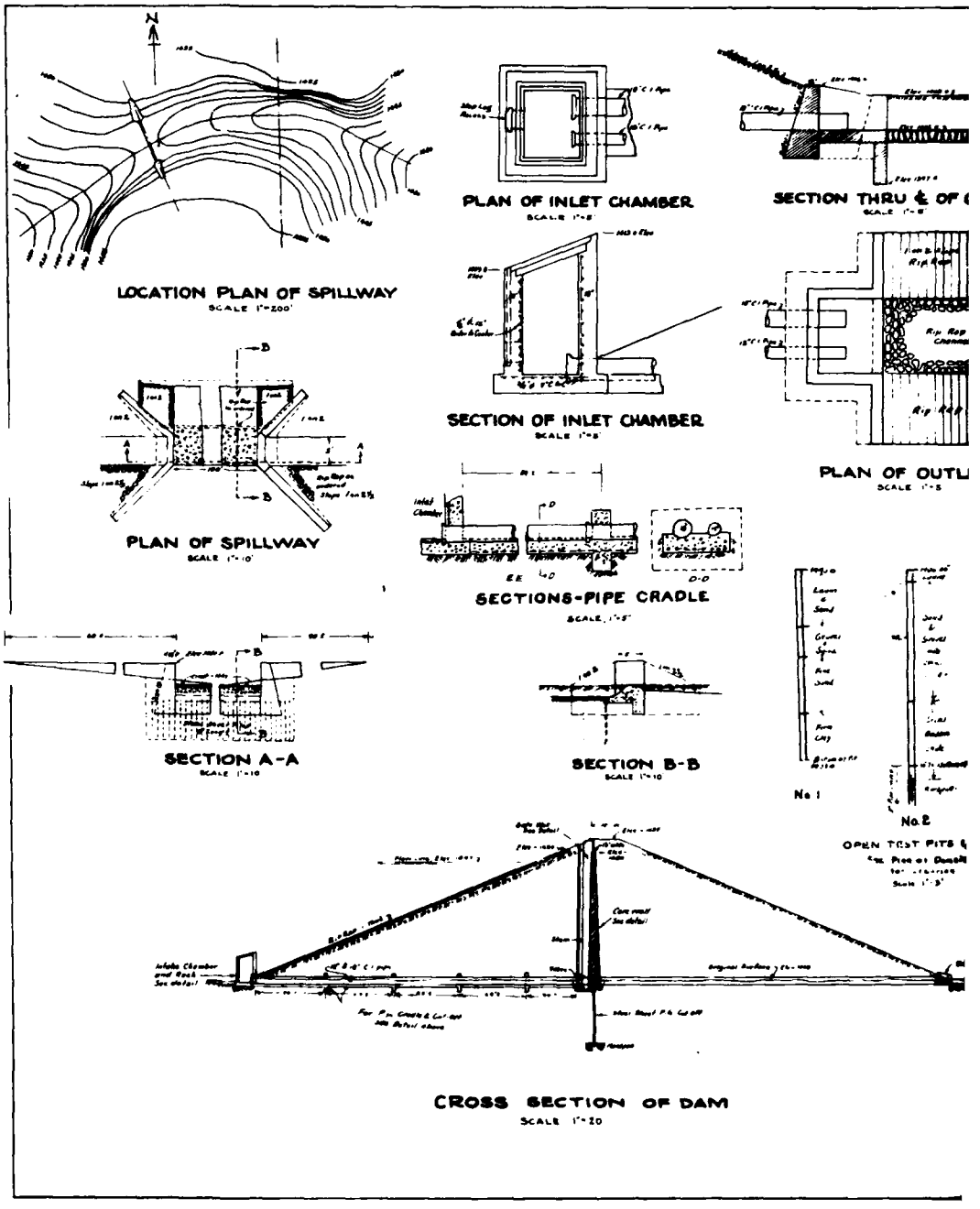


PLATE 2

DRAWN BY	smith	CHECKED BY		8-3-81	DRAWING NUMBER 80-778-B57
	8-4-81	APPROVED BY	JAP	8/5/81	



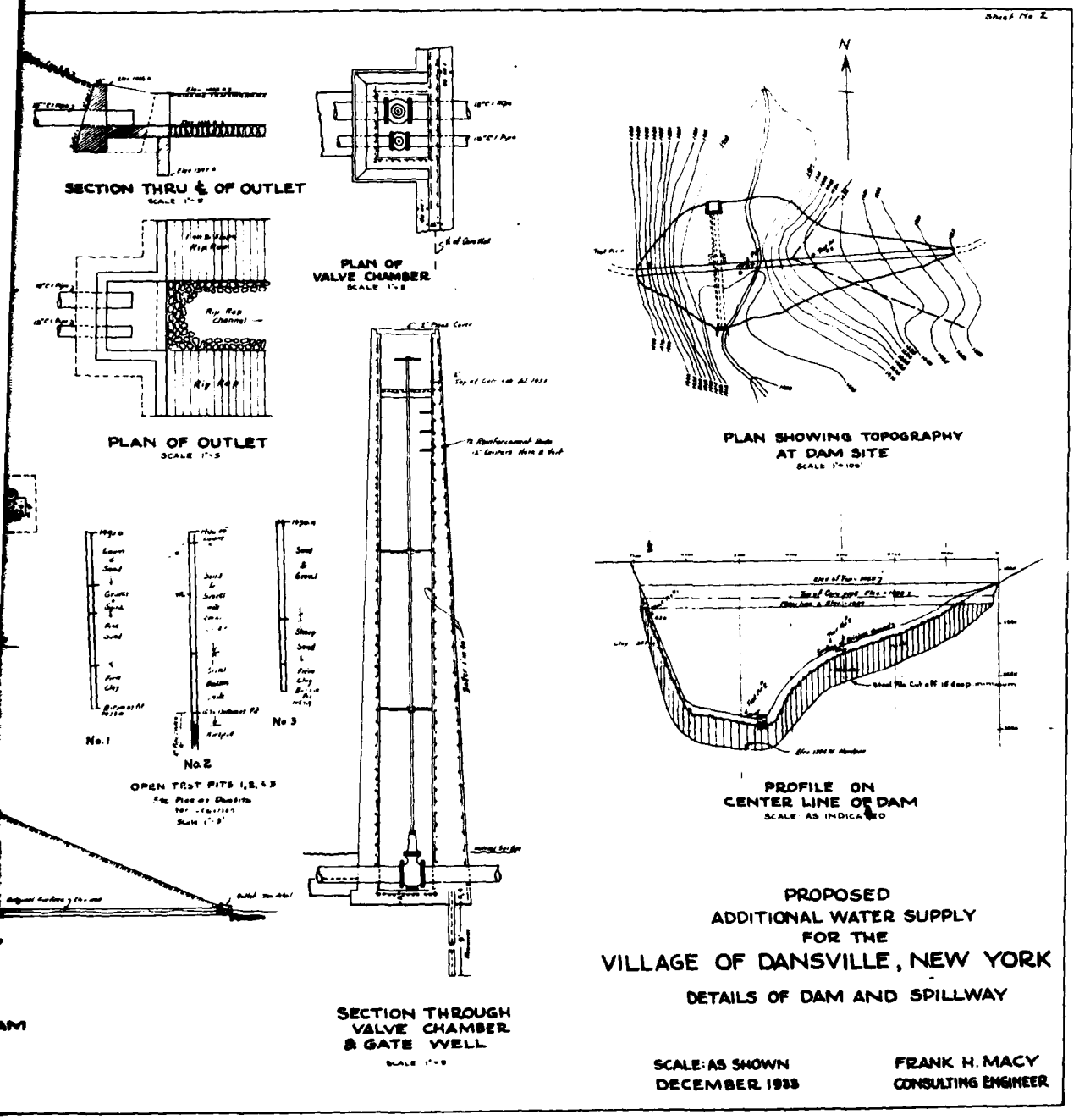


PLATE 3

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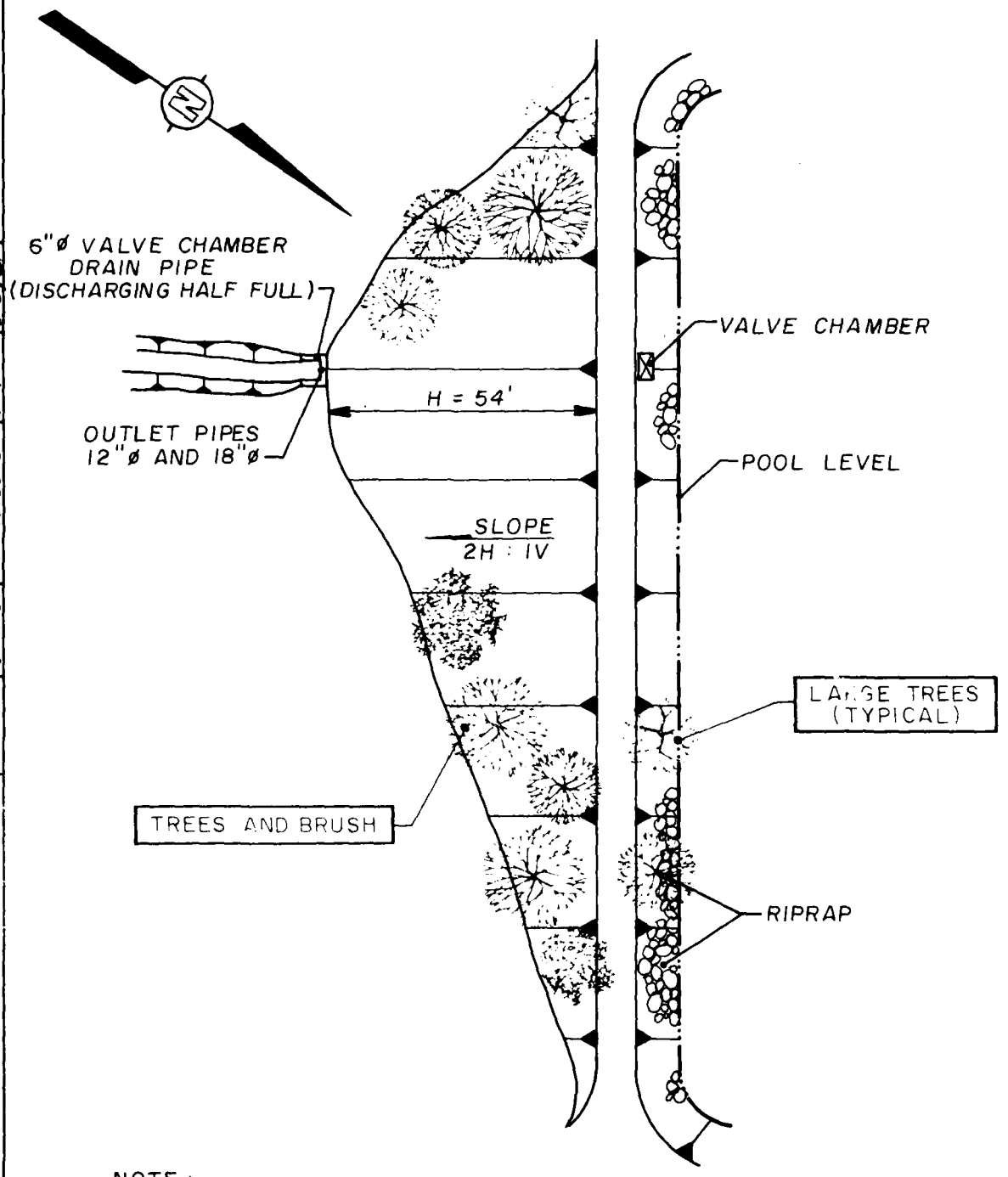
A Smith 8-4-81	APPROVED BY	80-778-A12



NOTE:

POOL LEVEL AT DATE OF INSPECTION: 1 FT. BELOW DAM CREST.

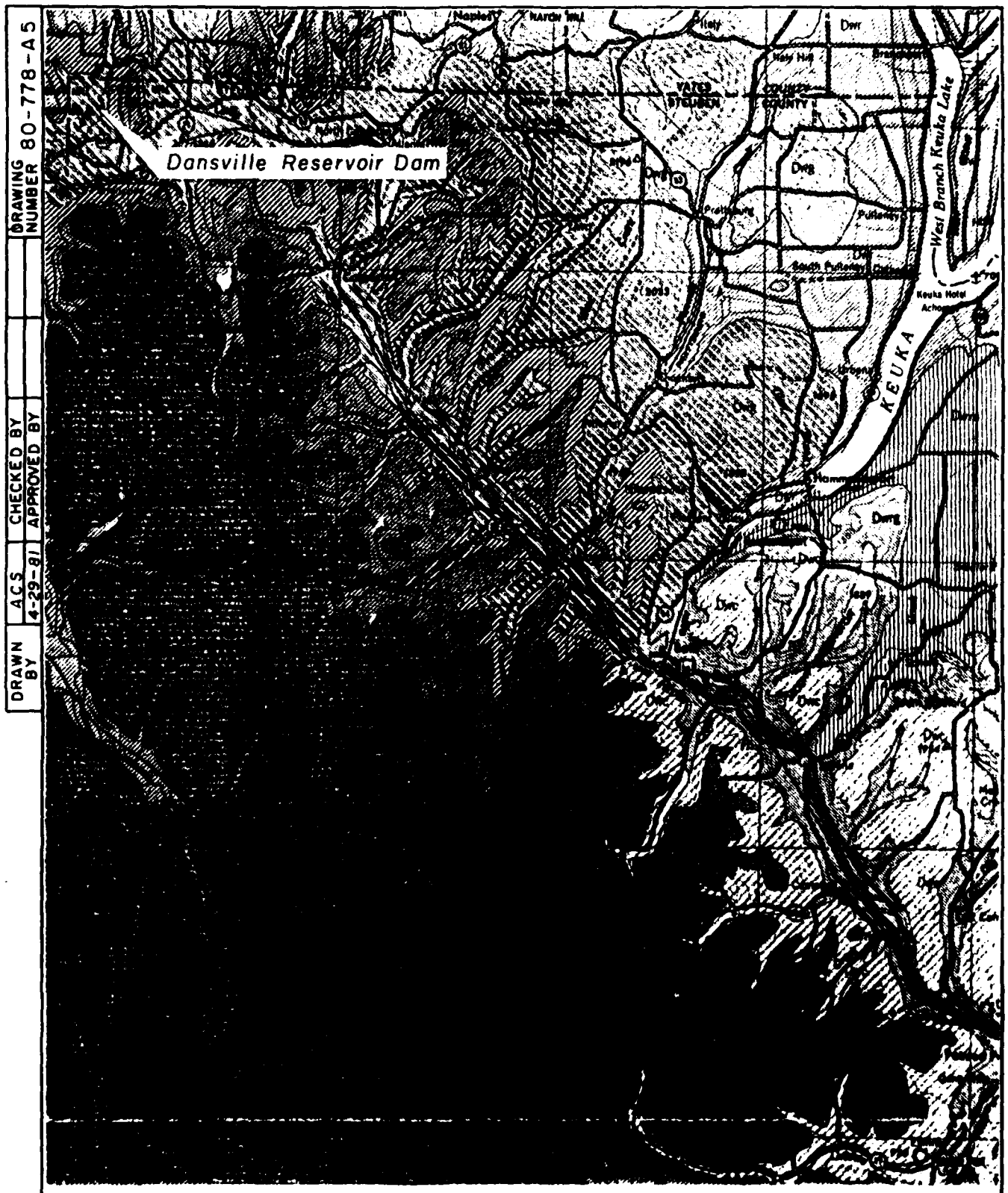
PLATE 4

DANSVILLE RESERVOIR DAM
GENERAL PLAN
FIELD INSPECTION NOTES
FIELD INSPECTION DATE: JUNE 26, 1981

D'APPOLONIA

APPENDIX F

GEOLOGY MAP



DRAWN BY	ACS	CHECKED BY		DRAWING NUMBER
	4-29-81	APPROVED BY		80-778-A5

GEOLOGY MAP

REFERENCE

GEOLOGIC MAP OF NEW YORK, FINGER LAKES SHEET
DATED 1970, SCALE 1:250,000

D'APPOLONIA

19 1253 HERCULENE A&B SMITH CO PGH PA LT1930-1078

DRAWN BY	ACS	CHECKED BY		5/78	DRAWING NUMBER 80-778-A6
	4-29-81	APPROVED BY		5-7-81	

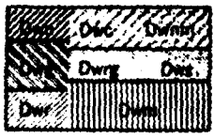
LEGEND

CANADAWAY GROUP
800-1200 ft. (240-370 m.)

Dcy — Machias Formation—shale, siltstone; Rushford Sandstone; Caneadea, Canisteo, and Hume Shales; Canaseraga Sandstone; South Wales and Dunkirk Shales; In Pennsylvania: Towanda Formation—shale, sandstone.

JAVA GROUP
300-700 ft. (90-210 m.)

Dj — Wiscoy Formation—sandstone, shale; Hanover and Pipe Creek Shales.



WEST FALLS GROUP
1100-1600 ft. (340-490 m.)

Dwn — *Nunda Formation*—sandstone, shale.

Dwg — West Hill and Gardeau Formations—shale, siltstone; Roricks Glen Shale; upper Beers Hill Shale; Grimes Siltstone.

Dwr — *lower Beers Hill Shale*; Dunn Hill, Millport, and Moreland Shales.

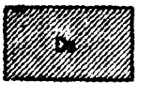
Dwc — Nunda Formation—sandstone, shale; West Hill Formation—shale, siltstone; Corning Shale.

Dwm — *"New Milford" Formation*—sandstone, shale.

Dwg — Gardeau Formation—shale, siltstone; Roricks Glen Shale

Dws — Slide Mountain Formation—sandstone, shale, conglomerate.

Dwm — Beers Hill Shale; Grimes Siltstone; Dunn Hill, Millport, and Moreland Shales



SONYEA GROUP
200-1000 ft. (60-300 m.)

Ds — in west: Cashaqua and Middlesex Shales.
in east: Rye Point Shale; Rock Stream ("Enfield") Siltstone; Pulteney, Sawmill Creek, Johns Creek, and Montour Shales.

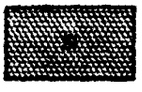
GENESEE GROUP AND TULLY LIMESTONE
200-1000 ft. (60-300 m.)

Dg — West River Shale; Genundewa Limestone; Penn Yan and Geneseo Shales; all except Geneseo replaced eastwardly by Ithaca Formation—shale, siltstone and Sherburne Siltstone.

Dgo — *Oneonta Formation*—shale, sandstone.

Dgu — *Unadilla Formation*—shale, siltstone.

Di — *Tully Limestone*



LOCKPORT GROUP
80-175 ft. (25-55 m.)

Sl — *Oak Orchard and Penfield Dolostones*, both replaced eastwardly by Sconondoa Formation—limestone, dolostone.

GEOLOGY MAP LEGEND

REFERENCE
GEOLOGIC MAP OF NEW YORK, FINGER LAKES SHEET
DATED: 1970, SCALE 1 250,000

D'APPOLONIA

10 1258 HERCULENE A&B SMITH CO PGH PA LTI590-1079

APPENDIX I

REFERENCES

APPENDIX I

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